EMC²

RELEASE NOTES

EMC AX4-5 Series Integrated Management Software

Version 02.23.050.5.709

Release Notes

P/N 300-005-724
REV A10
May 11, 2010

These release notes contain supplemental information about EMC® CLARiiON® AX4-5 (or AX4-5F), AX4-5i, AX4-5SC (or AX4-5FSC), AX4-5SCi (or AX4-5iSC), AX4-5F8 (or AX4-5FX), AX4-5SCF4 (or AX4-5FSCX) Integrated Management Software version 02.23.050.5.709.

This document uses the following terms:

- *Server* refers to a server or host that sends data to or receives data from the storage system.
- *Management station* refers to a server or host on the same LAN as the storage system.

You will start Navisphere® Express in a browser running on a management station. A management station can also be a server.

Topics include:

- Revision history 2
- Product description 3
- New features and changes 7
- Environment and system requirements 8
- Fixed problems 10
- Known problems and limitations 31
- Technical notes 39
- Documentation 43
- Software media, organization, and files 45
- Installation 45
- Troubleshooting and getting help 47

Revision history

The following table presents the revision history of this document.

Revision	Date	Description
A10	5/11/2010	Patch revision for 02.23.050.5.709; see the "New features and changes" and "Fixed problems" sections for details.
A09	11/11/2009	Patch revision for 02.23.050.5.707; see the "New features and changes" and "Fixed problems" sections for details.
A08	05/07/2009	Clarified VMware product name in the table in the "Fixed problems" section.
A07	04/17/2009	Patch revision for 02.23.050.5.705; see the "Fixed problems" section for details.
A06	08/08/2008	New revision 02.23.050.5.703 to include RAID-6 and other features.
A05	05/16/2008	Patch revision for 02.23.050.5.505 to fix issue 195543.
A04	03/21/2008	Patch revision for 02.23.050.5.504 to fix a few issues.
A03	01/15/2008	Required edits to correct text for Navisphere® Server Utility for revision 02.23.050.5.004.
A02	01/14/2008	The English version of the online help for the Init Utility is updated for revision 02.23.050.5.004.
A01	01/07/2008	Initial revision for 02.23.050.5.004

Product description

The AX4-5, AX4-5i, AX4-5SC, AX4-5SCi, AX4-5F8, AX4-5SCF4 Integrated Management Software consists of the storage-system and server software below.

Storage-system software component	Version
EMC® FLARE® Operating Environment, which includes - Shared storage control - EMC Navisphere® Express - Snapshot management	02.23.050.5.709
Optional software components	
Expansion tier enabler	01.01.5.001
Server software component	
Navisphere® Storage System Initialization Utility for Red Hat or SUSE Linux	6.28.x.yy.zzz
Navisphere Storage System Initialization Utility for Novell NetWare	6.28.x.yy.zzz
Navisphere Storage System Initialization Utility for Opteron	6.28.x.yy.zzz
Navisphere Storage System Initialization Utility for Microsoft Windows	6.28.x.yy.zzz
Navisphere Storage System Initialization Utility for Sun Solaris	6.28.x.yy.zzz
Navisphere Server Utility for AIX	6.28.x.yy.zzz
Navisphere Server Utility for HP-UX	6.28.x.yy.zzz
Navisphere Server Utility for Red Hat or SUSE Linux	6.28.x.yy.zzz
Navisphere Server Utility for Opteron	6.28.x.yy.zzz
Navisphere Server Utility for Microsoft Windows	6.28.x.yy.zzz
Navisphere Server Utility for Sun Solaris	6.28.x.yy.zzz

Storage-system software component	Version
EMC SnapView™ admsnap (AIX) SnapView admsnap (HP/UX) SnapView admsnap (Linux) SnapView admsnap (NetWare) SnapView admsnap (Solaris) SnapView admsnap (Win 2003) SnapView admsnap (Win 2008) SnapView admsnap (Windows 2000)	See the Admsnap Release Notes for further details
EMC PowerPath® for Microsoft Windows	See the PowerPath release notes on the AX4-5 support website*
PowerPath for Red Hat or SUSE Linux	
PowerPath for Novell NetWare**	
PowerPath for Sun Solaris	
PowerPath for AIX	
PowerPath for HP-UX	

* For information on accessing the AX4-5 support website, refer to the support information that shipped with your storage system.

** AX4-5SCi and AX4-5i storage systems do not support Novell NetWare operating systems.

Go to the AX4-5 support website to download the latest version of the software, and to download a localized version of Navisphere Express. Navisphere Express is available in English, French, German, Simplified Chinese, Japanese, Korean, Brazilian Portuguese, Spanish, and Italian.

FLARE Operating Environment software

FLARE Operating Environment (OE) software controls the operation of the AX4-5, AX4-5i, AX4-5F8, AX4-5SCF4, AX4-5SC, and AX4-5SCi disk-array storage systems.

AX4-5SC, AX4-5SCi and AX4-5SCF4 storage systems ship with a complete copy of FLARE OE software installed on the first and third disk modules (disk modules 0 and 2). These disk modules store mirrored copies of the software for the AX4-5SC, AX4-5SCi and AX4-5SCF4 storage processor (SP).

AX4-5, AX4-5i and AX4-5F8 storage systems ship with a complete copy of FLARE OE software installed on the first four disk modules (disk modules 0 through 3). Disk modules 0 and 2 store mirrored copies of the software for SP A, and disks 1 and 3 store mirrored copies of the software for SP B.

When you power up the storage system, each SP boots and executes FLARE OE software.

Shared storage control

Shared storage control software allows only the server(s) assigned to a virtual disk to access the virtual disk.

Navisphere Express

EMC Navisphere Express is a storage-system-based management utility for configuring and managing AX4-5 series storage systems. This software provides the following functionality:

- Storage configuration and allocation
- Event management

Each AX4-5SC, AX4-5SCi, AX4-5F8, AX4-5SCF4, AX4-5, and AX4-5i storage system ships from the factory with Navisphere Express installed.

Snapshot management software

The snapshot management software is a storage-system-based software application that lets you create a point-in-time copy — a snapshot — of a virtual disk; that is, you determine when the snapshot starts. A secondary server can then access and use the snapshot for backup purposes or as a base for temporary operations on the copy of the production data without changing the source data on the virtual disk.

Before you can start a snapshot, you must allocate the required snapshot disk resources. When the allocation completes, the state of the snapshot transitions to Ready, which means you can start the snapshot on the source server and then access the snapshot on the secondary server.

When you no longer require the snapshot's data, you can remove access to the snapshot. Only after you do this can you stop the snapshot. When you stop a snapshot, the point-in-time copy ends and the snapshot disk resources are freed for other snapshots to use. If you do not want to start another snapshot for this source virtual disk, you can destroy the snapshot. Destroying the snapshot frees and de-allocates the snapshot disk resources that were allocated when you prepared the snapshot.

Each AX4-5SC, AX4-5SCi, AX4-5F8, AX4-5SCF4, AX4-5, and AX4-5i storage system ships from the factory with snapshot management software installed.

Navisphere Storage System Initialization Utility

The EMC Navisphere Storage System Initialization Utility runs on your management station or attached server. It discovers uninitialized AX4-5 series storage systems, lets you assign IP addresses to the SPs on the same subnet, assign IPs to iSCSI ports for AX4-5i and AX4-5SCI storage systems, and set up security for these storage systems.

The Navisphere Storage System Initialization Utility ships on the *AX4 Series Server Support* CD that is supplied with the storage system.

For NetWare hosts, initialization from a Windows Storage System Initialization Utility is required and is documented on the *CLARiiON Server Support Products for Windows Servers Installation Guide (P/N 300–002–038).*

Navisphere Server Utility

See the *Host Agent/CLI & Utilities Release Notes* (300-007-053).

Admsnap

The Admsnap program runs on host systems and lets you start, activate, deactivate, and stop snapshots of virtual disks.

The Admsnap utility is an executable program that you can run interactively or with a script.

For all Microsoft Windows and UNIX platforms, flush cached data from the production host before you start a snapshot of a virtual disk. Failure to do this may result in an inconsistent or unusable point-in-time copy.

See the *Admsnap Release Notes* (P/N 300-007-061) for further details.

PowerPath software

PowerPath path management software manages the paths between Windows, Linux, NetWare, AIX, HP-UX or Solaris server and virtual disks in the storage system. It transfers I/O to a working path if one path fails and provides load balancing to distribute I/O load equally among paths.

The PowerPath software ships on the PowerPath CDs that are supplied with the storage system. Always check the AX4-5 support website for the latest version of PowerPath.

New features and changes

- **Increased support for Fibre Channel I/O**

  FLARE version 02.23.050.5.707 adds support for AX4-5F8 and AX4-5SCF4, which provide four Fibre Channel ports per storage processor.

  If you are managing an AX4-5F8 or AX4-5SCF4 storage system, host initiator records will be propagated to all ports on storage processor A and storage processor B. Ports A-0, A-1, B-0, and B-1 will be listed as Fibre while ports A-2, A-3, B-2, and B-3 will be listed as AUX, but are just standard fibre ports.

  AX4-5SCF4 to AX4-5F8 upgrades are supported. See the "Single-SP to dual-SP upgrades" section under "Technical notes" for information on this procedure.

- **RAID 6**

  FLARE version 02.23.050.5.7xx supports this new RAID type.

- **SecureCLI commands:**

  The **security** and **domain** commands are supported for AX4-5 storage systems managed with Navisphere Express. See the *Navisphere Command Line Interface Reference Guide (P/N 300-003-628)* for details.

  The **getsnifffer** command is supported for AX4-5 storage systems managed with Navisphere Manager. See *Navisphere Command Line Interface Reference Guide (P/N 300-003-628)* for details.

- **Generic drive capacity support**

  This is also called auto drive recognition. This new feature allows FLARE to automatically recognize a CLARiiON approved drive with new capacity. It facilitates the future drives with unknown larger capacity to be recognized on any shipping storage system.

- **SAS drive support in all configurations**

  The standard configuration for AX4-5 storage systems was SATA only; for this version the standard configuration includes SAS drives. The expansion enabler is no longer required to support SAS drives.

Environment and system requirements

This section identifies the minimum environment and system requirements necessary for the AX4-5SC, AX4-5SCi, AX4-5F8, AX4-5SCF4 , AX4-5, and AX4-5i Integrated Management Software components.

Storage-system type	Minimum hardware requirements
AX4-5SC, AX4-5SCi or AX4-5SCF4	• 1 SP • 1 power supply • SATA drives only, in one enclosure • Minimum 4 drives.
AX4-5, AX4-5i or AX4-5F8	• 2 SPs • 2 power supplies • 1 SPS for write caching • SAS (with expansion) or SATA drives.

Navisphere Express requirements

The minimum server requirements for Navisphere Express are:

- A management station with a minimum of one 500 MHz CPU, with 256 MB of RAM. EMC recommends using a 1 GHz CPU, with 512 MB of RAM.
- Internet Explorer 6.0 or later, or Firefox 1.0 or later.
- A TCP/IP network connection from the management station to each storage processor (SP) in the storage system.
- Minimum screen resolution of 1024 x 768 and 256 colors with small fonts.

Viewing Navisphere Express through a browser is supported on management stations running any of the following systems:

- Windows XP server
- Windows 2000 server
- Windows Server 2003 server
- Windows Vista
- Red Hat Linux server
- SUSE Linux server
- NetWare client

- Solaris client
- AIX client
- HP-UX client

For a listing of the currently supported versions of these operating systems, refer to **Supported Configurations** in the "Technical descriptions" section on the AX4-5 support website.

PowerPath requirements

For PowerPath requirements, refer to the PowerPath release notes on the AX4-5 support website.

Fixed problems

This section identifies issues fixed with this version or recent previous versions.

Visit the EMC Powerlink® Issue Tracker website at http://Powerlink.EMC.com for the most recent updates and information on previous FLARE versions.

Problems fixed in version 02.23.050.5.709

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** Repeated checksum errors from a drive can lead to indeterminate drive behavior. 29232574/224690 29816722/228038 Frequency of occurrence: Rarely under a specific set of circumstances. Severity: Critical	Repeated checksum errors from a drive can lead to indeterminate drive behavior. KnowledgeBase ID: emc220637	Fixed in code. Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 Fixed in version: 02.23.050.5.709
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** Media errors may be incorrectly reported as checksum errors. 32145854/242478 Frequency of occurrence: Always under a specific set of circumstances. Severity: Medium	Media errors are incorrectly reported as more severe checksum errors on SATA drives. KnowledgeBase ID: None	Fixed in code. Exists in versions: 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 Fixed in version: 02.23.050.5.709

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** Standby power supply (SPS) cabling status can be incorrectly marked as faulted if an SPS transitions to battery-on-line while being tested. 240286 Frequency of occurrence: Always under a rare set of circumstances Severity: Low	Standby power supply (SPS) cabling status can be incorrectly marked as faulted if an SPS transitions to battery-on-line while being tested. KnowledgeBase ID: None	Fixed in code. Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 Fixed in version: 02.23.050.5.709
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** If a hot spare drive fails after it has been swapped in for a failed drive in a RAID group, it may not be swapped out. 32476378/245009 Frequency of occurrence: Always under a rare set of circumstances. Severity: Medium	If a hot spare drive fails after it has been swapped in for a failed drive in a RAID group, it may not be swapped out. Rebuilds will not resume if the hot spare is replaced, or if the original failed drive in the RAID group is replaced. This happens when a RAID group expansion or defragmentation operation had previously been performed on the RAID group with the failed drive. KnowledgeBase ID: None	Fixed in code. Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 Fixed in version: 02.23.050.5.709

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** When one storage processor is rebooting while LUNs are being trespassed to the peer storage processor, the peer storage processor may bugcheck (0x008000f1) if a trespassing LUN becomes unowned or degraded. 29262488/228527 Frequency of occurrence: Infrequently under a specific set of circumstances Severity: Critical	When one storage processor is rebooting while LUNs are being trespassed to the peer storage processor, the peer storage processor may bugcheck (0x008000f1) if a trespassing LUN becomes unowned or degraded. KnowledgeBase ID: None	Fixed in code. Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 Fixed in version: 02.23.050.5.709
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** A single storage processor bugcheck (0xe117b264) may occur when a host aborts an I/O request. 31780348/240291 Frequency of occurrence: Rarely under a specific set of circumstances. Severity: Medium	A single storage processor bugcheck (0xe117b264) may occur when a host aborts an I/O request at the same time as the storage processor is processing prior host aborts. KnowledgeBase ID: None	Fixed in code. Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 Fixed in version: 02.23.050.5.709
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** Storage processor bugchecks (0x03107000) may occur on an iSCSI-connected storage system. 33228712/250252 33269046/250643 Frequency of occurrence: Rarely under a rare set of circumstances Severity: Critical	Storage processor bugchecks (0x03107000) may occur on an iSCSI-connected storage system due to a problem with the iSCSI hardware. KnowledgeBase ID: None	Fixed in code. Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 Fixed in version: 02.23.050.5.709

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** Storage processor bugchecks (0x0000007e) may occur if a host sends commands to a non-existent LUN. 33767086 /355858 33930452/357465 33026284/248994 Frequency of occurrence: Likely under a specific set of circumstances Severity: Critical	Storage processor bugchecks (0x0000007e) may occur if a host sends commands to a non-existent LUN. KnowledgeBase ID: None	Fixed in code. Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 Fixed in version: 02.23.050.5.709
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**Secure CLI** The **getall –hba** command does not display all initiator records. 240538 Frequency of occurrence: Always under a specific set of circumstances. Severity: Low	The **getall –hba** command should display the information displayed by the **port –list –all** command. KnowledgeBase ID: None	Fixed in code. Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 Fixed in version: 02.23.050.5.709
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**Navisphere Express** **Navisphere Manager** **Secure CLI** An upgrade to the OpenSSL library is required. 352047 Frequency of occurrence: Rarely under a specific set of circumstances. Severity: Low	OpenSSL was upgraded to version 0.9.8m. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 Fixed in version: 02.23.050.5.709

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**Navisphere Manager** On the Setup Page the Restart Managament Server option is not audit logged correctly. 354654 Frequency of occurrence: Always. Severity: Low	The username should be included in the audit log entry. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 Fixed in version: 02.23.050.5.709

Problems fixed in version 02.23.050.5.707

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**Navisphere Express** Migrating a 2 TB or larger LUN will result in data being lost. 29648814 / 228890 Frequency of occurrence: Always under a specific set of circumstances. Severity: High	Migrating a 2 TB or larger LUN will result in data being lost. A miscalculation was causing the destination LUN to be bound too small. KnowledgeBase ID: emc213417	Fixed in code. Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 Fixed in version: 02.23.050.5.707
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**Secure CLI** The **setsniffer** and **getsniffer** commands are not available for the AX platforms. 228144 Frequency of occurrence: Always. Severity: Low	The **setsniffer** and **getsniffer** commands are not available for the AX platforms. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 Fixed in version: 02.23.050.5.707

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**Navisphere Express** **Secure CLI** SP I/O module details show as N/A. 28948480 / 223876 Frequency of occurrence: Rarely under a specific set of circumstances. Severity: Low	SP I/O module details show as N/A. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 Fixed in version: 02.23.050.5.707
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** A single storage processor bugcheck (0x008000f1) may occur if a hot spare LUN is unbound immediately after it is bound. 25085264/206245 Frequency of occurrence: Likely under a specific event. Severity: Medium	A single storage processor bugcheck (0x008000f1) will occur if a hot spare LUN is bound, then unbound before it becomes assigned. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 Fixed in version: 02.23.050.5.707
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** Storage processor bugchecks (0x05900000) may occur when a Background Verify on a LUN is stopped because the LUN is trespassed. 29039264/223731 Frequency of occurrence: Rarely under a rare set of circumstances. Severity: Critical	Storage processor bugchecks (0x05900000) may occur when a Background Verify on a LUN is stopped because the LUN is trespassed while I/O is outstanding and correctable disk errors are being processed. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 Fixed in version: 02.23.050.5.707

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** When a zone configuration is disabled, storage systems affected by the zone change may experience storage processor bugchecks (0x01901057, 0x000000d1). 28121930/219399 Frequency of occurrence: Rarely under a rare set of circumstances. Severity: Critical	When a zone configuration is disabled, storage systems affected by the zone change may experience storage processor bugchecks (0x01901057, 0x000000d1). KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 Fixed in version: 02.23.050.5.707
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** Following a change to its World Wide Name (WWN) seed, a storage system may experience repeated storage processor bugchecks (0x0000007E). 29307940/225249 Frequency of occurrence: Always under a rare set of circumstances. Severity: Critical	Following a change to the World Wide Name (WWN) seed, a storage system may experience repeated storage processor bugchecks if one of the storage processors reboots for any reason before the change is fully processed, (0x0000007E). KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 Fixed in version: 02.23.050.5.707
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** While a storage processor is rebooting, a single storage processor bugcheck (0x030n2017) may occur. 30368840/232306 Frequency of occurrence: Rarely under a specific set of circumstances Severity: Medium	On an iSCSI connected storage system, a single storage processor bugcheck (0x030n2017) may occur if the host aborts an I/O while a storage processor is rebooting. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 Fixed in version: 02.23.050.5.707

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** When several fabric state changes occur very closely together, a single storage processor bugcheck (0x01944108) may occur. 29979658/228960 Frequency of occurrence: Likely under a rare set of circumstances. Severity: Medium	When several fabric state changes occur very closely together, a single storage processor bugcheck (0x01944108) may occur. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 Fixed in version: 02.23.050.5.707
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** A single storage processor bugcheck (0x03100018) may happen on an iSCSI storage system. 29043112 /223764 30803072/233986 Frequency of occurrence: Rarely under a rare set of circumstances. Severity: Medium	A single storage processor bugcheck (0x03100018) may happen on an iSCSI storage system when an iSCSI transaction appears to be hung. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 Fixed in version: 02.23.050.5.707
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** While one storage processor is rebooting, the peer storage processor may reset its front-end ports under a heavy load. 29853762/228159 30597240/232891 29997286/229220 30830536/234251 31187030/236125 Frequency of occurrence: Likely under a rare set of circumstances Severity: Critical	While one storage processor is rebooting, the peer storage processor may reset its front-end ports under a heavy load. KnowledgeBase ID: None	Fixed in code Exists in version: 02.23.050.5.705 Fixed in version: 02.23.050.5.707

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** An enclosure may be reported as faulted after an LCC is replaced. 231405 Frequency of occurrence: Rarely under a specific set of circumstances. Severity: Medium	An enclosure may be reported as faulted after an LCC is replaced. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 Fixed in version: 02.23.050.5.707
AX4-5i AX4-5SCi	**FLARE Operating Environment** On an AX4-5i or AX4-5SCi, storage processor bugchecks (0x000000D1) may occur when a host accesses a LUN. 31485584/238188 Frequency of occurrence: Always under a rare set of circumstances. Severity: Critical	On an AX4-5i or AX4-5SCi, storage processor bugchecks (0x000000D1) will occur if a host uses an unsupported address method to access a LUN. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 Fixed in version: 02.23.050.5.707

Problems fixed in version 02.23.050.5.705

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** A single storage processor bugcheck (0x008000f1) may occur when a hot spare is swapped in. 23569238/200490 Frequency of occurrence: Rarely under a specific set of circumstances. Severity: Medium	A single storage processor bugcheck (0x008000f1) may occur when a hot spare is swapped in for a drive, if a trespass is in progress for one of the LUNs on that drive. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5SC AX4-5SCi	**FLARE Operating Environment** Storage processor bugchecks (0x00000041) may occur during I/O processing on an AX4-5SC or AX4-5SCi storage system. 25721564/209421 Frequency of occurrence: Rarely under a rare set of circumstances. Severity: Critical	Storage processor bugchecks (0x00000041) may occur during I/O processing on an AX4-5SC or AX4-5SCi storage system. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** A single storage processor bugcheck (0x04000011) may occur while I/O is processing. 23428208/198386 Frequency of occurrence: Rarely under a specific set of circumstances Severity: Medium	A single storage processor bugcheck (0x04000011) may occur while I/O is processing if a back-end error occurs that results in a drive being powered down. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** System performance is degraded while LUN migration or LUN expansion operations are running. 25835368/209962 Frequency of occurrence: Always during a specific event Severity: Medium	System performance is degraded while LUN migration or LUN expansion operations are running. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** Making a LUN snapshot available to a host system while there is a LUN migration in process on the storage system may result in storage processor bugchecks (0xe117b264). 21208350/191115 Frequency of occurrence: Always under a rare set of circumstances Severity: Medium	Making a LUN snapshot available to a host system (using the host-based admsnap **activate** command) while there is a LUN migration in process on the storage system will result in a single bugcheck (0xe117b264) on the storage processor that owns the LUN being migrated. If the LUN has auto-assignment enabled, the peer storage processor may reboot with the same bugcheck. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** When several fabric state changes occur very closely together, one of various single storage processor bugchecks may occur. 26244824/211800 Frequency of occurrence: Likely under a rare set of circumstances. Severity: Medium	When several fabric state changes occur very closely together, one of various single storage processor bugchecks (including but not limited to 0x000000c2, 0x000000c5, or 0x00000044) may occur. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** Single or multiple SATA drives may drop out when an enclosure experiences a power cycle or glitch. 202516, 201305 Frequency of occurrence: High under a specific set of circumstances Severity: Medium	During I/O load, single or multiple drives may drop out when an enclosure has a power cycle or glitch because the SAS controller may fail to properly initialize a SATA drive in a SAS topology. KnowledgeBase ID: None	Fixed in code Exists in version: 02.23.050.5.703 Fixed in version: 02.23.050.5.705

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** Hosts attempting to boot their operating system over iSCSI from the storage system may fail. 213662 Frequency of occurrence: Likely under a rare set of circumstances. Severity: Critical	Hosts attempting to boot their operating system over iSCSI from the storage system may fail due to too many login sessions. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** Single-SP panic occurs when I/O is running if write-aside value is set low. 184973 Frequency of occurrence: Rarely under a specific set of circumstances Severity: Medium	Single-SP panic occurs when I/O is running if the write-aside value is set below the default value and trespassing is occurring. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** A single storage processor bugcheck (0x00000001) may occur. 25455418/208005 Frequency of occurrence: Rarely under a rare set of circumstances. Severity: Medium	A single storage processor bugcheck (0x00000001) may occur after several months of uptime. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i	**FLARE Operating Environment** During power maintenance both storage processors may reboot. 25051866/206590 Frequency of occurrence: Likely under a specific set of circumstances. Severity: Critical	During power maintenance affecting a switch or host and one-side of a storage system, in rare cases, the host I/O to the failed side may become stuck. This will result in one storage processor rebooting and the peer storage processor experiencing a bugcheck (0x e1318019). KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** A single storage processor bugcheck (0x00000000) may occur during a LUN migration or metaLUN usage. 25847624/ 210541 27660574/ 217216 27601668/ 217901 Frequency of occurrence: Likely under a rare set of circumstances. Severity: Medium	The metaLUN and migration drivers can receive an unexpected internal request which they mishandle, resulting in a single storage processor bugcheck (0x00000000). KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** Storage processors fail to boot following drive replacement. 216326 Frequency of occurrence: Always under a rare set of circumstances. Severity: Critical	If the database drives are used for user LUNs, and one or more of these drives are replaced while the storage processors are powered down, the storage processors may fail to boot fully when powered back on. KnowledgeBase ID: emc211731	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** The storage system may experience degraded performance when running VMware vSphere 4.0. 218213 Frequency of occurrence: Likely under a specific set of circumstances. Severity: Medium	The storage system may experience degraded performance when using the VMware FT feature in VMware vSphere 4. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** After expanding a RAID 1/0 RAID group, access to all LUNs in the RAID group was lost. 28705854/222224 Frequency of occurrence: Always under a specific set of circumstances. Severity: Critical	When expanding a RAID 1/0 RAID group, if the first LUN to be expanded is less than 3.5 MB, the capacity of the LUN is calculated incorrectly causing the remaining LUNs in the RAID group to be written over. KnowledgeBase ID: emc210383	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**Navisphere Express** Virtual disks that were created with names that do not include spaces will fail. 24546174 / 204199 Frequency of occurrence: Always under a specific set of circumstances. Severity: Low	Virtual disks that were created with names that do not include spaces will fail. KnowledgeBase ID: None	Always include a space in the virtual disk name. Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**Navisphere Express** Navisphere Express fails to load and displays `The Shared Storage Control Enabler is not installed on the storage system` although it is installed. 26024916 / 210915 25473468 / 208845 Frequency of occurrence: Rarely under a specific set of circumstances. Severity: High	Navisphere Express fails to load and displays `The Shared Storage Control Enabler is not installed on the storage system` although it is installed. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**Navisphere Express** A single SP panic with bugcheck code (0xe1158018) occurs. 204907 Frequency of occurrence: Rarely under a specific set of circumstances. Severity: Medium	A single SP panic with bugcheck code (0xe1158018) occurs. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**Navisphere Express** Navisphere Express incorrectly shows drives within an enclosure as empty. 202958 Frequency of occurrence: Rarely under a specific set of circumstances. Severity: Low	Navisphere Express incorrectly shows drives within an enclosure as empty. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**Navisphere Express** Continuous calls to getlog will slowly start to degrade management performance. 216483 Frequency of occurrence: Rarely under a specific set of circumstances. Severity: Low	Continuous calls to getlog will slowly start to degrade management performance. This is done anytime diagnostic files are created. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705
AX4-5i AX4-5SCi	**Navisphere Express** A memory leak will eventually cause Navisphere to restart. 220481 Frequency of occurrence: Always under a specific set of circumstances. Severity: Low	A memory leak will eventually cause Navisphere to restart. KnowledgeBase ID: None	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 Fixed in version: 02.23.050.5.705

Problems fixed in version 02.23.050.5.703

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5i AX4-5SCi	**FLARE Operating Environment** An SP becomes unmanageable to clients on remote subnets. This condition can be triggered by periodic loss of connectivity to the management port's gateway. 181359 Frequency of occurrence: Rarely under a specific set of circumstances Severity: Medium	When the ports on the switch associated with the iSCSI storage system are disabled, an iSCSI SP becomes unmanageable. Otherwise, the storage system functions normally.	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 Fixed in version: 02.23.050.5.703

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**Navisphere Express** A Solaris PowerPath device is displayed in Navisphere Express with the native device name. 182773 Frequency of occurrence: Always under a specific set of circumstances. Severity: Medium	The PowerPath device name is not displayed until the device is mounted on Solaris. This happens only in the user interface; The Naviserverutilcli displays the device name properly.	The PowerPath device name is now properly displayed in Navisphere Express. Exists in version: 02.23.050.5.504 Fixed in version: 02.23.050.5.703

Problems fixed in version 02.23.050.5.505

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5i AX4-5SCi	**FLARE Operating Environment** An AX4-5 iSCSI storage system may experience SP reboots when running multi-threaded large block read I/O. 195543 Frequency of occurrence: Likely under a specific set of circumstances. Severity: Critical	An AX4-5 iSCSI storage system may experience SP reboots when running multi-threaded large block read I/O. The unique signature "-R- Data Buffer RAM Parity Error Bus" can be found in the navi_getlog file in SPcollects. The problem can be seen within 15-20 minutes of starting the I/O load, but there is considerable variation. Knowledgebase solution: emc184908	Fixed in code Exists in versions: 02.23.050.5.004 02.23.050.5.504 Fixed in version: 02.23.050.5.505

Problems fixed in version 02.23.050.5.504

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** RAID 3 LUNs greater than 2 TB are not supported. 184510 Severity: Low Frequency of occurrence: Always	This version of software does not support RAID 3 LUNs greater than 2 TB.	RAID 3 LUNs greater than 2 TB are now supported. Exists in version: 02.23.050.5.004 Fixed in version: 02.23.050.5.504
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** SP panic and potential data loss can occur on RAID 3 LUNs larger than 2 TB. 184510 Frequency of occurrence: Likely under a specific set of circumstances Severity: Critical	Selecting **max** for LUN size in Navisphere allows creation of LUNs greater than 2 TB (which are not supported on RAID 3 in this version). On RAID 3 LUNs that are greater than 2 TB, it is possible for the LUN to get into a state where reads to a specific LBA cause an SP panic.	RAID 3 LUNs greater than 2 TB are now supported. Exists in version: 02.23.050.5.004 Fixed in version: 02.23.050.5.504
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** Media errors on SATA drives may result in longer than expected system recovery time. This will impact host/system response time to certain requests when media errors are occurring on ATA drives. 166596 Frequency of occurrence: Rarely during a specific event Severity: Medium	The internal error recovery timeout values for SATA drives are not set to the desired values. This will result in longer than desired timeouts on ATA drives. This will impact host/system response time to certain requests when media errors are occurring on ATA drives.	Fixed in code Exists in version: 02.23.050.5.004 Fixed in version: 02.23.050.5.504

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** Cache is not enabled after SPS misconfiguration is corrected. 184205 Frequency of occurrence: Always under a specific set of circumstances. Severity: Low	During initial system setup, if the SPS cabling is misconfigured, an alert occurs and cache is not enabled. Once the system is in this state, correctly configuring the cabling will not automatically enable cache. Forcing the SPS test to run (by unplugging and then re-inserting the SPS serial cable) clears the fault and enables the cache.	The cache will automatically re-enable once the cabling is correctly configured. Exists in version: 02.23.050.5.004 Fixed in version: 02.23.050.5.504
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** Data loss on power loss occurs due to misconfigured SPS cables. 184205 Frequency of occurrence: Always under a specific set of circumstances. Severity: Critical	Moving the SPS cables on an operational system may cause misconfiguration. The misconfigured state is not detected and the cache is left enabled, rendering the system vulnerable in the event of a power loss.	Misconfigured SPS cables are automatically detected and the cache is disabled. Exists in version: 02.23.050.5.004 Fixed in version: 02.23.050.5.504
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** If the SPS test time is set 5-10 minutes before the current time, the SPS test will start shortly thereafter rather than waiting for the correct time. 182525 Frequency of occurrence: Always under a specific set of circumstances Severity: Medium	When the SPS test time is set to 5-10 minutes before the current system time, it is expected that the SPS test would not start right away. Instead, the SPS test starts running shortly thereafter. Since the SPS test disables write caching, it is possible that there will be an unscheduled decrease in system performance while the test runs.	Fixed in code Exists in version: 02.23.050.5.004 Fixed in version: 02.23.050.5.504

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** A Navisphere Express alert is not cleared after an SPS misconfiguration is corrected. 184205 Frequency of occurrence: Always under a specific set of circumstances. Severity: Low	After correcting an SPS cabling misconfiguration, the Navisphere Express alert persists until the next time the SPS is tested.	Navisphere Express now shows the proper state of the SPS configuration. Exists in version: 02.23.050.5.004 Fixed in version: 02.23.050.5.504
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** When a disk fails and is in the process of rebuilding to a hot spare, if the original (failed) disk is replaced and starts to power up, it will remain in a powerup state until the rebuild to the hot spare completes. 184167 Frequency of occurrence: Always Severity: Medium	When a disk fails and is in the process of rebuilding to a hot spare, if the original (failed) disk is replaced and starts to power up, it will remain in a powerup state until the rebuild to the hot spare completes. The equalize will begin from the hot spare to the replaced disk as soon as the rebuild is complete, and the hot spare swap-out will occur as expected.	Re-inserting a failed drive while the RAID group is rebuilding to the hot spare will now result in immediate swap-out of the hot spare. Exists in version: 02.23.050.5.004 Fixed in version: 02.23.050.5.504
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**FLARE Operating Environment** The software indicates a drive failure when there is a single connection failure between an LCC and a drive, even if the LCC is the faulted component. 182470 Frequency of occurrence: Rarely under a specific set of circumstances Severity: Medium	The Navisphere user interface incorrectly indicates a drive failure when a single connection failure between an LCC and a drive occurs. It is possible that the actual faulted component is the LCC and replacing the drive does not clear the alert. This problem is limited to the first failure within a RAID group.	The user interface now properly differentiates between drive and LCC failures. Exists in version: 02.23.050.5.004 Fixed in version: 02.23.050.5.504

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi	**Navisphere Express** Manual registration of an initiator record with the same name but different case of a name already registered automatically results in a Navisphere Express error: `An unknown error has occurred while displaying the page.` 183839 Frequency of occurrence: Always under a specific set of circumstances Severity: Medium	Manual registration of an initiator record with the same name but different case of a name already registered automatically results in a Navisphere Express error: `An unknown error has occurred while displaying the page.` Navisphere Secure CLI does not show correct information for the initiator records and Navisphere Express server page is not accessible.	Initiator record names are now case insensitive. Exists in version: 02.23.050.5.004 Fixed in version: 02.23.050.5.504

Known problems and limitations

This section identifies outstanding issues with this version, and important warnings associated with the connectivity and compatibility of this product. It also provides useful recommendations.

Visit the EMC Powerlink® Issue Tracker website at http://Powerlink.EMC.com for the most recent updates and information on previous FLARE versions.

Known problems in version 02.23.050.5.709

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** A single-SP panic with bugcheck code (0x0A) occurs after a migration session's owning SP reboots. 199000 Frequency of occurrence: Rarely under a specific set of circumstances. Severity: Medium	When a migration session is running and its owning SP is rebooted, after the SP is back, it may panic. After the SP recovers from the panic, migration continues to progress and finishes.	None. After the system recovers from the SP panic, the migration session will resume its progress and finish. Exists in versions: 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 02.23.050.5.709
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** System fails to boot during image from flash operation. 190842 Frequency of occurrence: Rarely under a specific set of circumstances. Severity: High	The first time the storage system is powered up, it does not boot. This occurs only in systems that are configured to image from flash the first time they are booted. Knowledgebase solution: emc181529	Power-cycle the entire storage system. Exists in versions: 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 02.23.050.5.709

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** An NDU fails to complete and the storage system returns to normal operation. 186684 Frequency of occurrence: Rarely under a specific set of circumstances Severity: Low	An NDU fails to complete. The storage system returns to a normal running state following the failure. Re-attempting the NDU should be successful.	NDU will succeed on the second attempt. Exists in versions: 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 02.23.050.5.709
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** When enclosures are miscabled using a universal (non-keyed) cable, a single-SP panic will always occur. 185335 Frequency of occurrence: Always under a specific set of circumstances Severity: Medium	If an output port on an enclosure is cabled to another output port using a universal cable, the SAS discovery process does not complete, eventually resulting in an SP panic.	Check cabling carefully. The cables are keyed to prevent accidental miscabling. Should this situation occur, correcting the cabling issues fixes the problem. Exists in versions: 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 02.23.050.5.709
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** If you configure the back-end cables in a loop that encompasses two or more enclosures, the cable fault LEDs do not correctly light up. 168786 Frequency of occurrence: Rarely under a specific set of circumstances Severity: Medium	When you configure a closed loop of three or four DAEs on one side of the storage system, the fault LEDs do not light on all DAEs in the loop. In spite of this defect, the Navisphere cabling diagram is drawn correctly, and the correct fault code (alert) is returned. An example would be a closed loop: DAE1 --> DAE2 --> DAE3 --> DAE1. The problem arises only for two or more loops since the expander is unable to detect loops of two or more. Note that LEDs are correct for less than two loops.	Navisphere correctly alerts you to the miscabling issue. Check the cabling for problems. Exists in versions: 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 02.23.050.5.709

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** Single-SP panic occurs when the cache is shutting down. 182007 Frequency of occurrence: Rarely under a specific set of circumstances. Severity: Medium	If two drives within the same RAID group experience media errors on the same logical block address, then shutting down the cache can result in a single-SP panic.	The system recovers from the SP reboot and continues normal operation. Replacing one or both of the drives will prevent future occurrences. Exists in versions: 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 02.23.050.5.709
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**FLARE Operating Environment** When any unsupported drive is inserted into a single-SP system, the software may display an incorrect alert: `failed disk`. 183860 Frequency of occurrence: Rarely under a specific set of circumstances Severity: Low	When any unsupported drive is inserted into a single-SP system, the software correctly faults the drive but displays an incorrect alert: `failed disk` instead of the correct alert: `unsupported drive`.	None. Exists in versions: 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 02.23.050.5.709
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**Navisphere Express** Component statuses reported in the UI appear to toggle between normal and faulted. 173249, 173669, 174548 Frequency of occurrence: Always under a specific set of circumstances Severity: Medium	Inconsistent cabling of the two sides of the storage system causes component state information to differ between one side of the system and the other. In this scenario, states of various components, such as LCCs, hot spares, and others, may toggle between normal and faulted, depending on which SP is reporting the state. You may also receive duplicate emails for various alerts, if one SP believes a component is faulted, and the other SP believes its state to be normal.	Check cabling to ensure that the configuration is consistent between each side of the system. Exists in versions: 02.23.050.5.504 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 02.23.050.5.709

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**Navisphere Express** Navisphere Express does not support use of the auto-select encoding option in Internet Explorer (IE). Frequency of occurrence: Always under a specific set of circumstances Severity: Medium	Enabling the auto-select encoding option in IE will result in an unreadable character display in localized versions of Navisphere Express.	Disable the auto-select encoding option in IE. Exists in versions: 02.23.050.5.504 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 02.23.050.5.709
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**Navisphere Express** **Navisphere Manager** **Secure CLI** An SP incorrecly shows faulted status. 188123 Frequency of occurrence: Occasionally under a specific set of circumstances Severity: Medium	If the SPS power is switched off while the SP is powering up, the status of a power supply may show as faulted when viewed from one of the SPs.	The status will be corrected when there is a subsequent change in SP state. The status can be forced to correct itself by stopping and starting (or rebooting) the management server on the storage system. Exists in versions: 02.23.050.5.504 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 02.23.050.5.709
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**Navisphere Express** **Navisphere Manager** **Secure CLI** Navisphere Express does not display an alert when both SPs are up and one pin of the DIMM is grounded. 195295/195395 Frequency of occurrence: Occasionally under a specific set of circumstances Severity: Medium	If one pin of the DIMM is grounded, Navisphere Express does not display an alert.	The event log has this information logged. Use the Secure CLI **getlog** command to retrieve detailed information. Exists in versions: 02.23.050.5.504 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 02.23.050.5.709

Platforms	Brief description	Symptom details	Solution (or workaround)
AX4-5 AX4-5i AX4-5SC AX4-5SCi AX4-5SCF4 AX4-5F8	**Navisphere Express** Navisphere Express does not give details after an HBA is successfully modified. 203737 Frequency of occurrence: Always under a specific set of circumstances Severity: Low	After an HBA record is successfully modified, only the View All Connections link is present. Details of the modified HBA record are not displayed.	The View All Connections link shows the details of the HBA that has been successfully modified. Exists in versions: 02.23.050.5.004 02.23.050.5.504 02.23.050.5.505 02.23.050.5.703 02.23.050.5.705 02.23.050.5.707 02.23.050.5.709

PowerPath problems

PowerPath problems are described in the PowerPath release notes on the AX4-5 support website.

Limitations

This section lists issues that may affect the configuration or repair of the storage system.

General limitations

Virtual disks provided by the AX4-5 series storage system to be used for snapshot operations with VMware ESX Server must be configured on an ESX Server system as raw device mappings (RDMs). Virtual devices that are not used for snapshot operations may reside on Virtual Machine File System (VMFS) Volumes.

Navisphere Express limitations

The following configuration limitations and caveats apply when an AX4-5 series storage system is managed using Navisphere Express and virtual disks that use VMware ESX Server are to have snapshots created.

- Snapshots cannot be assigned to ESX 2.X Server, but may either be presented to a physical server running an operating system of the same type as the virtual machine for the source virtual disk or to a similar virtual machine under ESX 3.x.
- When using RDMs, the source virtual disk can be assigned to only one ESX Server.

Navisphere Express with Internet Explorer 7 limitations

The default security setting of the Internet Explorer 7 (IE7) browser might interfere with the normal operation of Navisphere Express. To support Navisphere Express with IE7, perform the following steps:

1. In IE7, click the **Tools** button located in the upper right part of the screen (next to the gear icon) and select **Internet Options**.
2. Click the **Security** tab and then click the **Custom Level** button.
3. Under **Settings**:
   a. Enable the **Allow META Refresh** option.
   b. Enable the **Active scripting** option.
4. In the **Security Settings** screen, click **OK**, and then click **Yes** to confirm that you want to change the settings.
5. Click **OK** to save the settings and close the dialog box.

If the problematic web page (which did not work without the JavaScript) is still opened inside the IE7 browser, press the F5 key on your keyboard to reload it. The web page should now work correctly.

Security certificate management

- An error message appears indicating that a web browser certificate is not issued by a certificate authority (CA)

  The storage system's SP certificate is not issued by a certificate authority (CA). It is dynamically generated on the storage system during runtime. As a result, the web browser might complain that the certificate is not issued by a CA. This is normal messaging. To avoid the error message from IE7, you must download the server certificate to the client machine using the browser, so that the next time you are running the browser, it will check its own key store to see if the certificate is trusted.

- Installing the security certificate on the client machine
  1. In the browser, enter the IP address for one of the storage system SPs.
  2. In the **There is a problem with the website's security certificate** page, select **Continue to this website (not recommended)**.

     The Navisphere Express login page opens.
  3. Under the title bar, click **Certificate Error**.

4. In the **Untrusted Certificate** popup page, click **View certificates**.

   The **General** tab of the **Certificate** dialog box opens. You should see a note telling you that this certificate is not trusted.

5. Click **Install Certificate**.

   The Certificate Import Wizard opens.

6. In the **Welcome** screen, click **Next**.
7. In the **Certificate Store** screen, select the **Place all certificates in the following store** option.
8. Click **Browse**, select **Trusted Root Certification Authorities** as the certificate store location, and then click **OK** to return to the **Certificate Store** screen.
9. Click **Next** and then in the next screen, click **Finish**.

   A security warning is displayed telling you that Windows cannot validate that this certificate is actually from the storage system. This warning is expected.

10. Click **Yes** in the warning message and then click **OK** in the success confirmation message.
11. Open a new instance of the IE7 browser and you will not see the certificate error icon.

LUN migration

- The migration of a component LUN that is part of a metaLUN is not supported.
- The destination LUN must be a public LUN when it is chosen for migration (this is the normal case).
- The destination LUN cannot be in use by any other layered feature.
- The destination LUN cannot be in a user-defined storage group.
- Migration and LUN expansion are mutually exclusive operations. An expanding LUN cannot be migrated, and a migrating LUN cannot be expanded.
- The source LUN cannot be a private LUN.
- If a layered application is using the source LUN, the source LUN can be migrated only to a LUN of the same size.
- After a migration completes, the data reported in the inquiry command will still reflect the LUN's original RAID type. The new RAID type is visible through the Navisphere interface. This behavior is as designed and is required to maintain compatibility with some operating systems.

- The maximum number of migrations that can be executing at one time is 4.

Snapshot configuration limitations

Snapshots	Maximum number
Per storage system	16
Per source virtual disk	1

PowerPath limitations

Any PowerPath limitations are described in the PowerPath release notes on the AX4-5 support website.

Technical notes

This section contains information that will help with the installation, use, and management of the storage system. It provides generic information that applies to all platforms, as well as platform-specific information.

Navisphere CLI

Navisphere CLI is no longer supported on the AX4-5 series storage systems. Navisphere Secure CLI should be used instead.

Background verify

To improve system performance, the default rate for background verify operations has been changed from ASAP to Medium. For systems running 02.23.050.5.004 which are upgraded to 02.23.050.5.504 or 02.23.050.5.7xx, the rate will remain at Medium unless manually changed using Navisphere Manager (requires full Navisphere Manager to be installed).

Single-SP configuration

The proper configuration for single-SP systems has the SP installed in the SP A slot of the DPE. A single-SP storage system with the SP installed in the B slot causes continuous reboot of the SP.

Single-SP to dual-SP upgrades

1. Install the Dual-SP enabler using Navisphere Express and wait for installation to complete. Verify using NaviSecCli **ndu -status**.
2. Destroy domain and security information using the **Setup** page option.
3. Install SP B (with the storage system powered up).
4. Wait for SP B to boot and stabilize. The SP fault LED will become solid green.
5. Use the Navisphere Initialization Tool UI to discover the storage system. Repeat until both SPs are displayed when **next** is clicked.
6. Use the Initialization Tool UI to set up the storage system.
7. Wait for both SPs to reboot (to pick up new IP information)

Notes:

- This procedure may take 30-60 minutes to complete.
- During this procedure, you may see some temporary alerts including 0x7428, 0x743a, 0x720f, 0x7403 or 0x7404. After the upgrade completes, all alerts will eventually disappear.
- An optional second SPS can be added after Step 7. The single SP will not use the SPS so the second SPS is always new when the second SP comes up.

SP reboot

EMC recommends that for dual-SP storage systems (AX4-5, AX4-5i or AX4-5F8), you reboot an SP only during periods of low I/O activity. If the server does not have at least one path to each SP and failover software installed and configured, EMC recommends stopping server I/O. For a single-SP storage system (AX4-5SC, AX4-5SCi or AX4-5SCF4), stop all I/O to the storage system.

Returning a storage system to an uninitialized state

For detailed instructions on how to return an AX4-5 storage system to the uninitialized state (no management passwords, able to change management IP addresses) go to the AX4-5 support website and choose **Service & Support.**

Event log entries appear out of order

FLARE OE software may not always enter items into the event log in the order in which they occurred. This happens only when several events occur at approximately the same time. The time stamps are correct.

Hot spare ownership

Once a hot spare is assigned to a degraded virtual disk, that virtual disk owns it until either the virtual disk is repaired and the equalize operation completes, or the virtual disk is destroyed. If the virtual disk is accidentally double-faulted because you removed the wrong disk module during repair, then re-inserting the incorrectly removed disk module should cause the virtual disk to return to its original state (including continued operation with the hot spare engaged).

Disk module insertion and removal

When inserting or removing more than one disk module from a storage system, you must pause between each removal and insertion to allow the storage system to recover. Before inserting or removing the next disk module you should make sure that:

- A newly inserted disk module's amber light is off and its blue light has returned to a normal state: on or blinking due to I/O in progress.
- On a disk module removal, the blue lights for the other disk modules return to a normal state: on or blinking due to I/O in progress.
- The storage system appears to have resumed normal operation.

Database disk module replacement

You should replace disk module 0, 1 or 2 only when the storage system is fully operational. The disk modules in these slots are FLARE OE database disk modules. Each database disk module contains an image of the storage-system configuration and current operating status. FLARE OE software ensures that the newly inserted disk module has the correct database information copied to it when it is installed while the storage system is running. If you insert a disk module into one of these slots when the storage system is powered off, the correct FLARE OE database information is *not* written to the replaced database disk module. As a result, storage-system configuration problems may occur when the storage system is powered up or if another database disk module fails. If you install a FLARE OE database disk module and you find that existing virtual disks are not enabled, contact your service provider.

Software image disk module replacement

The FLARE software image is stored on disk modules 0 and 2 for the AX4-5SC, AX4-5SCi and AX4-5SCF4 and disk modules 0, 1, 2 and 3 for the AX4-5, AX4-5i and AX4-5F8. Disk modules 0 and 2 mirror the software for the AX4-5SC, AX4-5SCi and AX4-5SCF4 SP, and also for SP A on the AX4-5, AX4-5i and AX4-5F8. Disk modules 1 and 3 mirror the software for SP B on the AX4-5, AX4-5i and AX4-5F8. You should never remove and/or replace both disk modules in one of the mirrors at the same time. If you do, no software exists to support that SP, and the SP becomes nonfunctional.

Linux server notes

Snapshot management

The reboot of the Linux server may be slow if deactivated snapshots exist. Activating the snapshots allows the reboot to complete normally.

VMware ESX Server configuration and usage notes

See the notes in the "Installation" section.

Documentation

The AX4-5 support website where you accessed these release notes also contains the most up-to-date documents and troubleshooting trees.

The *AX4-5 Series Documentation* CD (P/N 053-001-992) that shipped with the storage system also contains documents and troubleshooting trees for this product; however, they are superceded by those on the AX4-5 support website.

> The troubleshooting trees on the AX4-5 support website are updated frequently.

Documentation updates

This section contains updates to AX4-5 series documentation.

Update to *AX4-5 Series Documentation* CD (P/N 053-001-992)

If you are viewing the documentation CD on a Solaris server, the pdf files may not open directly from the **index.htm** page. You can either save the pdf when prompted or you can view the pdfs from the **AX4-5 support pdf** folder.

Update to the Fibre Channel storage-system installation guides and the HBA addition or replacement guides

In the "Verifying HBA registration" section, the first sentence in the second bullet in step 2 should be:

If the status is Inactive, either the physical connection between the HBA and the storage system is faulty or the server is not powered up.

Update to the iSCSI storage-system installation guides and the NIC or iSCSI HBA addition or replacement guides

In the "Verifying NIC or iSCSI HBA registration" section, the first sentence in the second bullet in step 2 should be:

If the status is Inactive, either the physical connection between the NIC or iSCSI HBA and the storage system is faulty or the server is not powered up.

Update to *AX4-5 Series - Installing an iSCSI Storage System with a Network Connection to a Windows Server* and *AX4-5 Series - Installing an iSCSI Storage System with a Direct Connection to a Windows Server*

Dynamic disks

Contrary to what the installation guides say, do not upgrade a disk in an iSCSI storage system to a dynamic disk when writing a digital signature to the disk. Dynamic disks are not supported by the Microsoft iSCSI Software Initiator.

Update to *Navisphere Express Online Help*

In the pop-up description for **Secondary server**, the note should also state that the secondary server cannot be a virtual machine on a VMware server.

Update to PowerPath release notes

- All AX4-5 series installation, planning, and troubleshooting documents and software are located on the AX4-5 support website. For information on accessing the site, refer to the support documentation that shipped with your storage system. Refer only to these documents for prescribed installation and troubleshooting tips when using your AX4-5 series storage system. For an overview of the AX4-5 series storage system with PowerPath, be sure to read *PowerPath in Action: Maintaining Access to Virtual Disks in the AX4-5* (click **PowerPath** in the "Technical descriptions" section of the AX4-5 support website).
- A logical device or LUN on other EMC storage systems is known as a virtual disk in an AX4-5 series storage system.
- When there are references to accessing Powerlink, ESM, and E-Lab™ Navigator, click **Supported Configurations** in the "Technical descriptions" section of the AX4-5 support website
- Issue Tracker is not supported.

Software media, organization, and files

The following table lists the software and documentation media for this product version.

Part number	CD-ROM
053-001-987	*AX4 Series Server Support CD* (contains Navisphere CLIs, Navisphere Storage Initialization Utilities, Navisphere Server Utilities and admSnap for all supported host types)
053-001-541	*PowerPath Netware 3.0.6 CD*
053-001-996	*PowerPath Windows 5.1 & 4.5.1 CD*
053-001-854	*PowerPath Linux 4.3.5/5.0 CD*
053-001-710	*PowerPath Solaris 5.0 CD*
053-001-797	*PowerPath AIX 5.0 CD*
053-001-799	*PowerPath SP 5.0 CD*

Installation

The storage-system component (FLARE Operating Environment) of the Integrated Management Software is installed on the storage system at the factory prior to shipment. To install a new version of this software on the storage system, refer to the procedure for upgrading storage-system software on the AX4-5 support website. For information on accessing this site, refer to the support information that shipped with the storage system. Once on the website, click **Storage-system software** under **Software** in the "Upgrade" section.

You must install the appropriate host components from the AX4-5 Series Server Support CD and the appropriate PowerPath CD.

VMware ESX Server installation notes

Follow the instructions in VMware ESX Server chapter in the *EMC Installation Roadmap for CX3 Series, CX Series, AX Series, or FC Series Storage Systems* with the following exceptions:

- Install the Navisphere Initialization Utility and Navisphere Server Utility from the *AX-Series Server Support Products* CD that shipped with the storage system. Follow the instructions for Linux in the setup guide for your storage system to install and run these utilities on the ESX Server Console OS (COS).
- Skip the step on installing admhost because SAN Copy/E is not supported for Navisphere Express.

- Skip the step on installing software enablers because they are not needed for Navisphere Express.
- Use Navisphere Express to configure the storage system as follows:
  1. Create a hot spare.
  2. Create one or more disk pools.
  3. Create one or more virtual disks on the disk pools.
  4. Assign one or more disks to the ESX Server.
- Use Navisphere Express to set up Event Notification.

VMware ESX Server guest OS installation instructions

When installing the Navisphere Server Utility on a Windows guest OS virtual machine, it is important that you answer **No** to the question `Do you want information about this server to be updated every time the server starts?` Failing to do so can result in misleading server information in Navisphere Express displays.

When installing the Navisphere Server Utility on a Linux guest OS virtual machine you will need to edit the Linux startup file to remove the following entry:

"`/opt/Navisphere/bin/naviserverutilcli update`"

Troubleshooting and getting help

To troubleshoot problems with your AX4-5SC, AX4-5SCi, AX4-5, AX4-5i, AX4-5F8 or AX4-5SCF4 storage system, use the troubleshooting trees in the "Troubleshoot" section on the AX4-5 support website or the *AX4-5 Series Documentation* CD. You must use the troubleshooting trees before your service provider will send you a replacement part. To launch the troubleshooting trees, click the **Interactive help tool** in the "Troubleshoot" section. The AX4-5 support website also includes a list of authorized service providers.

> The information on the website may be more up-to-date than the information on the documentation CD. For information on how to access the AX4-5 support website, refer to the support information that shipped with the storage system.

Copyright © 2007-2010 EMC Corporation. All Rights Reserved.

EMC believes the information in this publication is accurate as of its publication date. The information is subject to change without notice.

THE INFORMATION IN THIS PUBLICATION IS PROVIDED "AS IS." EMC CORPORATION MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WITH RESPECT TO THE INFORMATION IN THIS PUBLICATION, AND SPECIFICALLY DISCLAIMS IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Use, copying, and distribution of any EMC software described in this publication requires an applicable software license.

For the most up-to-date regulatory document for your product line, go to the Technical Documentation and Advisories section on EMC Powerlink.

For the most up-to-date listing of EMC product names, see EMC Corporation Trademarks on EMC.com.

All other trademarks used herein are the property of their respective owners.

Open source copyright and license information for this product is in "AX4-5 Series Integrated Management Software Open Source Copyright and License Information" located in the Technical Documentation and Advisories section on EMC Powerlink.